RHODES, COATS & BENNETT, LLP
P.O. Box 5
Raleigh, NC 27602
(919) 832-3946 (Office)
(919) 831-9056 (Fax)

facsimile transmittal

To:	**Examiner Thomas Wyse**	**Phone:**	(703) 308-3841
Company:	**PTO - GROUP 1308**	**Fax:**	(703) 305-3602
From:	Larry L. Coats, Esquire	**Date:**	8/26/97
Re:	Serial No. 08/810,834 P-4013.002	**Pages:**	6

☐ **Urgent** ☑ **For Review** ☐ **Please Comment** ☐ **Please Reply**

COMMENTS:

UNOFFICIAL. PLEASE NOTE - THIS IS A PRELIMINARY DRAFT TO BE USED FOR DISCUSSION PURPOSES ONLY IN AN INTERVIEW WITH MR. WYSE ON THURSDAY, AUGUST 28, 1997 AT 2:00 P.M. PLEASE DELIVER DIRECTLY TO MR. WYSE IN ART UNIT 1308.

Operator: **Robin C. Gibbs**

CONFIDENTIAL

FAX
AUG 27 1997
GROUP 1300

NOT TO BE FILED.
FOR DISCUSSION PURPOSES ONLY.
TO BE DISCUSSED IN AN INTERVIEW SCHEDLUED FOR THURSDAY, AUGUST 28, 1997 AT 2:00 P.M. DELIVER DIRECTLY TO MR. WYSE IN ART UNIT 1308.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Delsalle et al.

Serial No. 08/810,834

Filed March 4, 1997

For: **METHOD AND INSTALLATION FOR TREATING AN UNTREATED FLOW BY SEDIMENTATION AFTER BALLASTING WITH FINE SAND**

Attorney's Docket No. P-4013.002

Thomas G. Wyse
Senior Examiner
Art Unit 1308

Raleigh, North Carolina
August 26, 1997

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

In response to the Official Office action of June 23, 1997, relating to the above-identified U.S. Patent Application, the following remarks are submitted:

REMARKS

The Official Office Action dated June 23, 1997 has been carefully studied and reviewed. In view of the following remarks, it is believed that all claims define patentable subject matter over the prior art made of record by the Examiner. Accordingly, claim allowance is respectfully requested.

The Examiner has rejected claims 1-17 as being obvious in light of von Hagel (U.S. Pat. No. 4,388,195). It is respectfully submitted that the Patent and Trademark Office has not established a prima facie case of obviousness based on von Hagel because von Hagel, even if modified as suggested by the Examiner, does not disclose all the limitations of claim 1, the independent claim from which claims 2-17 depend. Claim 1 includes the limitation that the method include "adding insoluble granular material having a density greater that the influent liquid." For reference, Applicant's specification describes the granular material as "preferably sand (easy to obtain at low cost) with a mean particle size between about 20 μm and 300 μm, preferably between 80 μm and 200 μm." Page 17, lines 12-14. No granular material is disclosed for use in the von Hagel process; nor does the Examiner refer to any other reference showing granular material. Because this granular material limitation is neither disclosed or suggested, a prima facie case of obviousness has not been made.

In addition, the process of the present invention entails directing the settled sludge from the sedimentation tank to a separation zone and separating the granular insoluble material from the sludge and recycling the granular insoluble material back through the sedimentation process. von Hagel does not teach or suggest this feature of Applicants' invention. In fact, the von Hagel process is in reality a sludge contact process. That means, that the sludge itself is continuously recycled through the process. That differs markedly from the present invention where the sludge is actually separated from the granular insoluble material and not recycled through the process while the separated insoluble granular material is actually recycled back through the process. Thus, fundamentally, the processes defined in the present invention and in the von Hagel references are fundamentally different. In fact, von Hagel states that the recycling of the sludge is actually essential to his process. For example, note col.

3, lines 15-19. There, von Hagel states:

> "It is essential for the effective operation of the process, contrary to previous known processes, that the sludge which is already been concentrated is returned to the reaction areas of Phase II and/or III as contact sludge."

Thus, it is clear that the process of von Hagel absolutely depends upon sludge contact and the actual recycling of sludge to the sedimentation process. Again, that is to be contrasted with Applicant's invention where the granular insoluble material is what is actually recycled back through the process.

Relying on von Hagel, the Patent and Trademark Office asserts that modifying von Hagel by 1) eliminating the separator plates and 2) including the claimed mirror rate limitation would have been obvious to one of ordinary skill in the art because neither change has been shown to be results-effective. It is respectfully submitted that both of these changes are results-effective.

Taking them in inverse order, the mirror rate is by definition results-effective. The mirror rate (m/hr) is the flow rate in m^3/hr divided by the surface area of the sedimentation area in m^2. Thus, the mirror rate is in effect a measurement of the speed of the sedimentation for a given size sedimentation area. Clearly, the speed at which a process can be accomplished is results-effective. Further, claim 1's mirror rate limitation is tied to an output quality level of "producing a clarified effluent having at least 60% reduction in suspended solids relative to the influent liquid." Most processes can be speeded up with a resulting degradation in quality. Claim 1 is limited to the method of removing solids having a minimum "speed" while maintaining a specified minimum quality level. This higher "speed" results in a more economical process, as pointed out in the specification. (*See, e.g.*, page 6, lines 1-7 ("more economical and simpler than existing processes"), page 6, lines 8-12 ("which is very

much greater than the speeds at most around ten meters per hour obtained with [prior art]"). Accordingly, it is respectfully submitted that the mirror rate limitation is results-effective. As such, it can not be obvious from von Hagel to include the claimed mirror rate.

Turning now to the separator plates, the specification points out in several locations where the lack of separator plates is results-effective. First, page 5, lines 20-22 points out that "separator plates represent a non-negligible element of the cost of installation, both through their inherent cost and through the resulting installation and cleaning constraints." Page 20, lines 9-12 point out that eliminating the separator plates "eliminates the installation constraints associated with the separator plates. For example, a round shape can be chosen for the sedimentation chambers." Perhaps more importantly, the specification clearly points out that the result of high mirror rates without separator plates is non-obvious. *See, e.g.*, page 5, lines 16-19 ("all the recent methods described in the literature, ..., are based on the use of separator plates for sedimentation wherever mirror settling speeds in excess of 15 m/h, for example, are required"); page 6, lines 1-7 ("In a manner that the person skilled in the art will find surprising and unexpected, [Applicant's method] can yield high settling speeds despite the absence of separator plates"); page 12, line 23 - page 13, line 8 ("There was previously nothing to suggest the possibility of obtaining such settling speeds without using [separator plates] . . . obtaining high settlement speeds [] has systematically been attempted until now by combining the use of separator plates with a particular way of preparing the floc.").

Even the von Hagel patent shows that separator plates were thought important. At col. 3, lines 58-66, von Hagel states when discussing the presence of separator plates (referred to as "parallel plate and/or tube settler system") that "only in this way

[will flocs] be separated readily and effectively from the clarified water." Later, the separator plates are described as being necessary for proper operation of the von Hagel method. '195 patent, col. 5, lines 55-64. Note also that U.S. Pat. Nos. 4,290,898 and 4,141,970, also to von Hagel, likewise disclose the use of separator plates.

The high surface loading rate referred to in von Hagel is the same as the mirror rate discussed in the present application. It is clear that the high surface loading rate of von Hagel is linked directly to the presence of separator plates. See the discussion in von Hagel at col. 3, lines 58-60 and col. 4, lines 2-4. There, von Hagel clearly states that the high loading surface rate of 30-52 $m^3/m^2 \cdot hr$ is attributable to the presence of separator plates. Thus, there is no teaching or suggestion in von Hagel that these types of results could, under any circumstances, be achieved with the absence of separator plates.

In light of the above, separator plates are clearly a results-effective variable. As such, their elimination in Applicant's claim 1 would not have been obvious. Further, looking at the invention as a whole, the elimination of the separator plates while maintaining mirror rates above 15 m/hr and still producing clarified effluent with at least 60% reduction in suspended solids is not obvious in view of von Hagel.

Accordingly, it is respectfully requested that the § 103 rejection for claim 1 be withdrawn. Further, because claims 2-17 depend from claim 1, it is respectfully requested that the § 103 rejection be withdrawn for these claims as well.

Respectfully submitted,

RHODES, COATS & BENNETT, L.L.P

By:

Larry L. Coats
Registration No. 25,620

Telephone: (919) 832-3946

THIS PAGE BLANK (USPTO)